

Notice of Allowability

Application No.

10/640,364

Examiner

Joseph W. Drodge

Applicant(s)

COLUCCI, WILLIAM J.

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed on 4/7/2006.
2. ☒ The allowed claim(s) is/are 1,2,4,5,7,9 and 12-19, now renumbered claims 1-13.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 0506.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

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An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Independent claim 1 has been amended as follows: --

Claim 1 (currently amended) A device for delivering at least one fuel additive to a fuel upon immersion in the fuel, said device comprising an ion-exchange resin having an equilibrium constant whereby ion exchange occurs in response to chemical equilibrium forces sufficient to effectuate an exchange, and to which a fuel additive is reversibly bound by a chemical interaction, wherein the ion-exchange resin is selected from the group consisting of anionic exchange resins and cationic exchange resins having acidic [and/]or basic groups located on the resin, and wherein the fuel additive is at least partially removed from the ion-exchange resin in exchange for a component in the fuel which reversibly binds to the ion-exchange resin, **and wherein the fuel additive is selected from the group consisting of lubricity additives, combustion improvers, cold flow improvers, dehazers, demulsifiers, cetane improvers, antioxidants, scavengers, pollution suppressants, manganese tricarbonyl additives, isostearic imidazoline, NOx/SOx hydrocarbon emission reducers, and deposit formation reducers and preventers.**--

Each of claims 11 and 12 has been canceled.

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Independent claim 17 has been amended as follows: --

Claim 17 (currently amended) A device for supplying an additive to a fuel and adapted to release the fuel additive into said fuel at a controlled rate upon immersion of the device in the fuel, said device comprising:

a fuel-permeable housing assembly defining a chamber; and

an ion-exchange resin having an equilibrium constant whereby ion exchange occurs in response to chemical equilibrium forces sufficient to effectuate an exchange, disposed within said chamber to which a fuel additive is reversibly bound by a chemical interaction, wherein the ion-exchange resin is selected from the group consisting of anionic exchange resins and cationic exchange resins having acidic [and/]or basic groups located on the resin, and wherein the fuel additive is at least partially removed from the ion-exchange resin in exchange for a component in the fuel which reversibly binds to the ion-exchange resin, and wherein the fuel additive is selected from the group consisting of lubricity additives, combustion improvers, cold flow improvers, dehazers, demulsifiers, cetane improvers, antioxidants, scavengers, pollution suppressants, manganese tricarbonyl additives, isostearic imidazoline, NOx/SOx hydrocarbon emission reducers, and deposit formation reducers and preventers. --

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Independent claim 18 has been amended as follows: --

Claim 18 (currently amended) A method for supplying a fuel additive to a fuel comprising:

immersing in a fuel an ion-exchange resin having an equilibrium constant whereby ion exchange occurs in response to chemical equilibrium forces sufficient to effectuate an exchange, selected from the group consisting of anionic exchange resins and cationic exchange resins having acidic [and/]or basic groups located on the resin to which is reversibly bound a fuel additive; chemically displacing the fuel additive from the ion-exchange resin in exchange for a component in the fuel which reversibly binds to the ion-exchange resin, whereby the fuel additive is released into the fuel, **and wherein the fuel additive is selected from the group consisting of lubricity additives, combustion improvers, cold flow improvers, dehazers, demulsifiers, cetane improvers, antioxidants, scavengers, pollution suppressants, manganese tricarbonyl additives, isostearic imidazoline, NOx/SOx hydrocarbon emission reducers, and deposit formation reducers and preventers.** -- .

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Independent claim 19 has been amended as follows: --

Claim 19 (currently amended) A system for supplying an additive to a fuel and adapted to release the fuel additive into said fuel at a controlled rate, said system comprising:

an ion-exchange resin having an equilibrium constant whereby ion exchange occurs in response to chemical equilibrium forces sufficient to effectuate an exchange, to which a fuel additive is reversibly bound by a chemical interaction, wherein the ion-exchange resin is selected from the group consisting of anionic exchange resins and cationic exchange resins having acidic [and/]or basic groups located on the resin, and wherein the fuel additive is at least partially removed from the ion-exchange resin in exchange for a component in the fuel which reversibly binds to the ion-exchange resin, **and wherein the fuel additive is selected from the group consisting of lubricity additives, combustion improvers, cold flow improvers, dehazers, demulsifiers, cetane improvers, antioxidants, scavengers, pollution suppressants, manganese tricarbonyl additives, isostearic imidazoline, NOx/SOx hydrocarbon emission reducers, and deposit formation reducers and preventers.** -- .

The following is an examiner's statement of reasons for allowance: Each of independent claims 1,17,18 and 19 are now distinguished over all of the prior art in view of the combination of recitations concerning the ion-exchange resin to which a fuel additive is reversibly bound by a having acidic or basic groups located on the resin and the additive which is bound to the ion-exchange resin being a member of a Markush Group of additives detailed in the respective independent claims.

The closest prior art is now deemed Chang et al patent 5,296,228 in combination with Amick patent 5,023,275 that together suggest method or device for slow release dispensing of an antibacterial, antifungal, dispersion agent, or detergent agent that is reversibly coupled to acid or basic group of ion-exchange group to either a fuel additive, directly to fuel, or as a pharmaceutical agent for drug delivery purposes (see, in particular, Chang at column 8, line 53-68, column 9, lines 57-68 and column 11, lines 12-37 and Amick at column 2, lines 41-56, the extensive Table bridging columns 3,4 and 5, column 6, lines 22-36 and 47-52). Neither Chang et al or Amick suggest dispersing of an additive of any type from the now instantly claimed Markush group that is reversibly bound to an ion exchange resin.

The instant claims also distinguish over the formerly applied prior art combination of Rohrbach et al, Drodz et al and Graiff, of record, in view of recitations of the fuel additive being reversibly bound to acid or basic group of ion exchange resin. Gao et al patent 6,851,414 is made of record in view of reciting an oil additive comprising an ion exchange resin with basic groups that are released from a filter in which they are contained when contacted by acids in an oil flowing through the filter (column 4, lines 17-24 and column 5, lines 42-53). Heilman et al patent 6,124,513 various oil or fuel additives formulated in a synthetic oil or fuel base oil solution (column 15, lines 32-40). Brownawell patent 5,068,044 teaches any of various additives, primarily of the strong-base acid neutralizing type slowly released from adsorbents that are incorporated or immobilized in a filter system or substrate on an automobile engine block or sump, but not suggesting releasable binding of additive to an ion exchange resin (column 5, lines

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13-24 and column 7, lines 27-40 and 55-68). Brownawell also does not suggest any of the Markush group additives of the instant claims. Herdle patent 4,888,425 teaches polyamines used to form fuel additives or pharmaceuticals or ion exchange resins, however not suggesting releasable binding of additive to ion exchange resin.

Support for the Markush Group of particular additives now specified in claims 1, 17, 18 and 19, is from original claims 11 and 12, and the instant Specification at page 7, lines 11-15, page 6, lines 10-18 and page 8, lines 16-18.

Support for amending "acidic and/or basic groups" in claims 1 and 17-19 with "acid or basic groups is found in the 1st paragraph of page 2 of the instant Specification and were made to make the claims consistent with the Specification in this regard.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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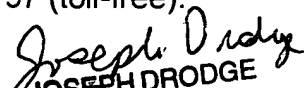
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at telephone number 571-272-1140. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached at 571-272-1151. The fax phone number for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD

May 19, 2006


JOSEPH DRODGE
PRIMARY EXAMINER